

CLAIMS

1. A device for producing electrical discharges in an aqueous medium, said device comprising:
a first electrode and a second electrode, each of said electrodes comprised of a superalloy
5 having a cobalt content of greater than 8% by weight; said device producing a voltage discharge into
the medium when a high electrical voltage is applied to said electrodes, the voltage discharge
creating a pressure wave in the medium.

2. The device according to claim 1 wherein said superalloy has a cobalt and a nickel content of
greater than 12% by weight.

3. The device according to claims 1 or 2 wherein said superalloy has a tungsten content of 0.1-
15% by weight.

4. The device according to claims 1, 2 or 3 wherein said superalloy has a titanium content of
0.1-5% by weight.

5. A device for producing electrical discharges in an aqueous medium, said device comprising:
a first electrode and a second electrode, each of said electrodes comprised of a superalloy
20 having a nickel content of greater than 8% by weight, said device producing a voltage discharge into
the medium when a high electrical voltage is applied to said electrodes, the voltage discharge

creating a pressure wave in the medium.

6. The device according to claim 5 wherein said superalloy has a tungsten content of 0.1-15% by weight.

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7. The device according to claims 5 or 6 wherein said superalloy has a titanium content of 0.1-5% by weight.

8. A device for producing electrical discharges in an aqueous medium, said device comprising:
10 a first electrode and a second electrode, each of said electrodes comprised of a thermal-worked steel having a vanadium content of greater than 0.05% by weight and a chromium content of greater than 1% by weight, said device producing a voltage discharge into the medium when a high electrical voltage is applied to said electrodes, the voltage discharge creating a pressure wave in the medium.

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9. The device according to claim 10 wherein said thermal-worked steel has a vanadium content of 0.07-3.5% by weight.

10. The device according to claim 10 wherein said thermal-worked steel has a chromium content
20 of 1-15% by weight.

11. The device according to claims 8, 9 or 10 wherein said thermal-worked steel has a tungsten content of 1-10% by weight.

12. A device for producing electrical discharges in an aqueous medium, said device comprising:

5 a first electrode and a second electrode, each of said electrodes comprised of a stainless steel having a chromium content of greater than 12.5% by weight, said device producing a voltage discharge into the medium when a high electrical voltage is applied to said electrodes, the voltage discharge creating a pressure wave in the medium.

0 13. The device according to claim 12 wherein said stainless steel has a chromium content of less than 30% by weight.

14. The device according to claims 12 or 13 wherein said stainless steel has nickel component of 2-25% by weight.

5 15. An electrode for use in a device that produces electrical discharges in an aqueous medium, said electrode comprising:

a superalloy having a cobalt content greater than 8%.

20 16. The electrode according to claim 15 wherein said superalloy has a cobalt and a nickel content of greater than 12% by weight.

17. The electrode according to claims 15 or 16 wherein said superalloy has a tungsten content of 0.1-15% by weight.

5 18. The electrode according to claims 15, 16 or 17 wherein said superalloy has a titanium content of 0.1-5% by weight.

19. An electrode for use in a device that produces electrical discharges in an aqueous medium, said electrode comprising:

a superalloy having a nickel content of greater than 8% by weight.

20. The electrode according to claim 19 wherein said superalloy has a tungsten content of 0.1-15% by weight.

21. The electrode according to claims 19 or 20 wherein said superalloy has a titanium content of 0.1-5% by weight.

22. An electrode for use in a device that produces electrical discharges in an aqueous medium, said electrode comprising:

20 a thermal-worked steel having a vanadium content of greater than 0.05% by weight and a chromium content of greater than 1% by weight.

23. The electrode according to claim 22 wherein said thermal-worked steel has a vanadium content of 0.07-3.5% by weight.

5 24. The electrode according to claim 22 wherein said thermal-worked steel has a chromium content of 1-15% by weight.

25. The electrode according to claims 22, 23 or 24 wherein said thermal-worked steel has a tungsten content of 1-10% by weight.

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26. An electrode for use in a device that produces electrical discharges in an aqueous medium, said electrode comprising:

stainless steel with a chromium content of greater than 12.5% by weight.

15 27. The electrode according to claim 26 wherein said stainless steel has a chromium content of less than 30% by weight.

28. The electrode according to claims 26 or 27 wherein said stainless steel has nickel component of 2-25% by weight.